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<110> E. I. du Pont de Nemours and Company

<120> Chorismate Biosynthesis Enzymes

<130> BB-1159

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<150> 60/093,611
<151> July 21, 1998

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<212> PRT
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<400> 2

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Ser Val Ala Ser Pro Ser Arg His Ser Cys Tyr Leu Leu Arg Ala Ser
35 40 45

Pro Ser Arg Arg His Arg Ser Arg Phe Val Ala Asn Ala Ala Pro Thr
50 55 60

Met Gln Pro Pro Ala Glu Ser Arg Val Ser Thr Val Val Asp Val Asp
65 70 75 80

Leu Gly Asp Arg Ser Tyr Pro Ile Tyr Ile Gly Ala Gly Leu Leu Asp
85 90 95

Glu Pro Asp Leu Leu Gln Arg His Val His Gly Lys Arg Val Leu Val
100 105 110

Val Thr Asn Thr Thr Val Ala Pro Leu Tyr Leu Asp Lys Val Thr Trp
115 120 125

Ala Leu Thr His Asn Asn Leu Asn Val Ser Val Glu Ser Val Ile Leu
130 135 140

Pro Asp Gly Glu Lys Tyr Lys Asn Met Asp Thr Leu Met Lys Val Phe
145 150 155 160

Asp Lys Ala Val Glu Ser Arg Phe Asp Arg Arg Cys Thr Phe Val Ala
165 170 175

Leu Gly Gly Gly Val Ile Gly Asp Met Cys Gly Phe Ala Ala Ala Ala
180 185 190

Phe Leu Arg Gly Val Asn Phe Ile Gln Ile Pro Thr Thr Leu Met Ala
195 200 205

Gln Val Asp Ser Ser Val Gly Gly Lys Thr Gly Ile Asn His Pro Leu
210 215 220

Gly Lys Asn Leu Ile Gly Ala Phe Tyr Gln Pro Gln Cys Val Leu Ile
225 230 235 240

Asp Thr Asn Thr Leu Asn Thr Leu Pro Asp Arg Glu Leu Ala Ser Gly
245 250 255

Ile Ala Glu Val Val Lys Tyr Gly Leu Ile Arg Asp Ala Pro Phe Phe
260 265 270

Glu Trp Gln Glu Lys Asn Met Pro Lys Leu Leu Ala Arg Glu Pro Asn
275 280 285

Ala Leu Ala Tyr Ala Ile Lys Arg Ser Cys Glu Asn Lys Ala Glu Val
290 295 300

Val Ala Gln Asp Glu Lys Glu Ser Gly Leu Arg Ala Thr Leu Asn Leu
305 310 315 320

Gly His Thr Phe Gly His Ala Ile Glu Thr Gly Thr Gly Tyr Gly Ala
325 330 335

Trp Leu His Gly Glu Ala Val Ala Ala Gly Thr Val Met Ala Thr Asp
340 345 350

Met Ser His Arg Leu Gly Trp Ile Asp Asp Ser Ile Arg Lys Arg Val
355 360 365

Val Asp Ile Leu Lys Gln Ala Lys Leu Pro Ile Ala Pro Pro Glu Thr
370 375 380

Met Thr Val Glu Lys Phe Lys Asn Ile Met Ala Val Asp Lys Lys Val
385 390 395 400

Ala Asp Gly Leu Leu Arg Leu Ile Leu Leu Lys Gly Pro Leu Gly Cys
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Cys Val Phe Thr Gly Asp Tyr Asp Gly Asn Ala Leu Asp Glu Thr Leu
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His Ala Phe Cys Asp Asn
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<212> DNA
<213> Oryza sativa

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<212> PRT
<213> Oryza sativa

<400> 4

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Ala Ala Ala Ala Ser Leu Pro Ser Pro Ser Arg Ala Ser Cys Ala Pro
35 40 45

Pro Leu Arg Ala Ser Ala Ala Arg Thr Leu Arg Ser Arg Val Val Ala
50 55 60

Ser Ala Ala Pro Ala Met Gln Pro Pro Pro Ala Ser Arg Val Ser Thr
65 70 75 80

Val Val Asp Val Asp Leu Gly Asp Arg Ser Tyr Pro Ile Tyr Ile Gly
85 90 95

Ala Gly Leu Leu Asp Glu Pro Asp Leu Leu Gln Arg His Val His Gly
100 105 110

Lys Arg Val Leu Val Val Thr Asn Thr Thr Val Ala Pro Leu Tyr Leu
115 120 125

Glu Lys Val Thr Trp Ala Leu Thr His Asn Asn Pro Asn Val Ser Val
130 135 140

Glu Ser Val Ile Leu Pro Asp Gly Glu Lys Tyr Lys Asp Met Gly Thr
145 150 155 160

Leu Met Lys Val Phe Asp Lys Ala Val Glu Ser Arg Leu Asp Arg Arg
165 170 175

Cys Thr Phe Val Ala Leu Gly Gly Gly Val Ile Gly Asp Met Cys Gly
180 185 190

Phe Ala Ala Ala Ala Phe Leu Arg Gly Val Asn Phe Ile Gln Ile Pro
195 200 205

Thr Thr Leu Met Ala Gln Val Asp Ser Ser Val Gly Gly Lys Thr Gly
210 215 220

Ile Asn His Pro Leu Gly Lys Asn Leu Ile Gly Ala Phe Tyr His Pro
225 230 235 240

Gln Cys Val Leu Ile Asp Thr Glu Thr Leu Asn Thr Leu Pro Asp Arg
245 250 255

Glu Leu Ala Ser Gly Ile Ala Glu Val Val Lys Tyr Gly Leu Ile Arg
260 265 270

Asp Ala Pro Phe Phe Glu Trp Gln Glu Lys Asn Met Pro Ala Leu Leu
275 280 285

Ala Arg Glu Pro Ser Ala Leu Ala Tyr Ala Ile Lys Arg Ser Cys Glu
290 295 300

Asn Lys Ala Glu Val Val Ala Gln Asp Glu Lys Glu Ser Gly Leu Arg
305 310 315 320

Ala Thr Leu Asn Leu Gly His Thr Phe Gly His Ala Ile Glu Thr Gly
325 330 335

Thr Gly Tyr Gly Ala Trp Leu His Gly Glu Ala Val Ala Ala Gly Thr
340 345 350

Val Met Ala Ala Asp Met Ser His Arg Leu Gly Trp Ile Asp Glu Ser
355 360 365

Ile Lys Lys Arg Ala Ile Asp Ile Leu Glu Lys Ala Lys Leu Pro Ile
370 375 380

Thr Pro Pro Glu Ala Met Thr Val Glu Lys Phe Lys Ser Ile Met Ala
385 390 395 400

Val Asp Lys Lys Val Ala Asp Gly Leu Leu Arg Leu Ile Leu Leu Lys
405 410 415

Gly Pro Leu Gly Ser Cys Val Phe Thr Gly Asp Tyr Cys Ser Ser Arg
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Ser Thr Cys Arg
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<212> DNA
<213> Glycine max

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<212> PRT
<213> Glycine max

<400> 6

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His Phe Asn Ser Asn Asn Asn Trp Ala Trp Ala Ser Val Ser Thr Ser
        35                  40                  45

Arg Lys Ser Arg Ile Cys Ala Thr Ser Ser Gln Val Met Asp Pro Ser
    50                  55                  60

Ala Ala Lys Ser Glu Pro Ala Leu Pro Thr Ile Val Glu Val Asp Leu
65                  70                  75                  80

Gly Ser Arg Ser Tyr Pro Ile Tyr Ile Gly Ser Gly Leu Leu Asn Gln
                85                  90                  95

Pro Asp Tyr Leu Gln Arg His Val His Gly Lys Arg Val Leu Val Val
            100                 105                 110

Thr Asn Glu Thr Val Ala Pro Leu Tyr Leu Asp Lys Val Val Asp Ala
        115                 120                 125

Leu Thr Arg Gly Asn Pro Asn Val Ser Val Glu Ser Val Ile Leu Pro
    130                 135                 140

Asp Gly Glu Gln Tyr Lys Asp Met Asp Thr Leu Met Lys Val Phe Asp
145                 150                 155                 160

Lys Ala Ile Glu Ser Arg Leu Asp Arg Arg Cys Thr Phe Val Ala Leu
                165                 170                 175

Gly Gly Gly Val Ile Gly Asp Met Cys Gly Phe Ala Ala Ser Ala Phe
            180                 185                 190

Leu Arg Gly Val Asn Phe Ile Gln Ile Pro Thr Thr Val Met Ala Gln
        195                 200                 205

Val Asp Ser Ser Val Gly Gly Lys Thr Gly Ile Asn His Arg Leu Gly
    210                 215                 220

Lys Asn Met Ile Gly Thr Phe Tyr Gln Pro Gln Cys Val Leu Ile Asp
225                 230                 235                 240

Thr Asp Thr Leu Asn Thr Leu Pro Asp Arg Glu Leu Ala Ser Gly Leu
                245                 250                 255

Ala Glu Val Ile Lys Tyr Gly Leu Ile Arg Asp Ala Glu Phe Phe Glu
            260                 265                 270

Trp Gln Glu Lys Asn Met His Leu Leu Leu Ala Arg Asp Pro Ser Val
        275                 280                 285
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Met Ala Tyr Ala Ile Lys Arg Ser Cys Glu Asn Lys Ala Glu Val Val
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Ser Leu Asp Gln Lys Glu Ser Gly Leu Arg Ala Thr Leu Asn Leu Gly
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His Thr Phe Gly His Ala Ile Glu Thr Gly Val Gly Tyr Gly Gln Trp
                325   330   335

Leu His Gly Glu Ala Val Ala Ala Gly Thr Val Met Ala Val Asp Met
            340   345   350

Ser Tyr Arg Leu Gly Trp Ile Asp Asp Ser Leu Val Lys Arg Val Gly
        355   360   365

Asp Ile Leu Lys Gln Ala Lys Leu Pro Thr Ala Pro Pro Glu Thr Val
    370   375   380

Thr Val Asp Met Phe Lys Ser Val Met Ala Val Asp Lys Lys Val Ala
385   390   395   400

Asp Gly Leu Leu Arg Leu Ile Leu Leu Lys Gly Pro Leu Gly Asn Cys
                405   410   415

Val Phe Thr Gly Asp Tyr Asp Arg Lys Ala Leu Asp Asn Thr Leu Arg
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Ala Phe Cys Lys Ser
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<211> 1103
<212> DNA
<213> Triticum aestivum

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agaagaaaaa aaaaaaaaaa aaa 1103

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<211> 268
<212> PRT
<213> Triticum aestivum

<400> 8

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Pro Thr Thr Leu Met Ala Gln Val Asp Ser Ser Val Gly Gly Lys Thr
35 40 45

Gly Ile Asn His Pro Leu Gly Lys Asn Leu Ile Gly Ala Phe Tyr Gln
50 55 60

Pro Gln Cys Val Leu Ile Asp Thr Glu Thr Leu Asn Thr Leu Pro Asp
65 70 75 80

Arg Glu Leu Ala Ser Gly Val Ala Glu Val Val Lys Tyr Gly Leu Ile
85 90 95

Arg Asp Ala Pro Phe Phe Glu Trp Gln Glu Lys Asn Met Ala Ala Ile
100 105 110

Leu Ala Arg Glu Pro Ser Ala Leu Thr Tyr Ala Ile Lys Arg Ser Cys
115 120 125

Glu Asn Lys Ala Glu Val Val Ala Gln Asp Glu Lys Glu Ser Gly Leu
130 135 140

Arg Ala Thr Leu Asn Leu Gly His Thr Phe Gly His Ala Ile Glu Thr
145 150 155 160

Gly Leu Gly Tyr Gly Glu Trp Leu His Gly Glu Ala Val Ala Ala Gly
165 170 175

Thr Val Met Ala Ala Asp Met Ser Tyr Arg Leu Gly Trp Ile Asp Glu
180 185 190

Ser Ile Lys Lys Arg Thr Phe Asp Ile Leu Asp Gln Ala Lys Leu Pro
195 200 205

Val Thr Ser Pro Lys Gly Met Thr Val Glu Lys Phe Arg Asn Ile Met
210 215 220

Ala Val Asp Lys Lys Val Ala Asp Gly Leu Leu Arg Leu Ile Leu Leu
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Lys Gly Pro Leu Gly Gly Cys Val Phe Thr Gly Glu Tyr Asp Arg Lys
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Ala Leu Asp Glu Thr Leu Arg Ala Phe Cys Asp Asn
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<211> 362
<212> PRT
<213> Escherichia coli

<400> 9

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35 40 45

Tyr Leu Asp Lys Val Arg Gly Val Leu Glu Gln Ala Gly Val Asn Val
50 55 60

Asp Ser Val Ile Leu Pro Asp Gly Glu Gln Tyr Lys Ser Leu Ala Val
65 70 75 80

Leu Asp Thr Val Phe Thr Ala Leu Leu Gln Lys Pro His Gly Arg Asp
85 90 95

Thr Thr Leu Val Ala Leu Gly Gly Gly Val Val Gly Asp Leu Thr Gly
100 105 110

Phe Ala Ala Ala Ser Tyr Gln Arg Gly Val Arg Phe Ile Gln Val Pro
115 120 125

Thr Thr Leu Leu Ser Gln Val Asp Ser Ser Val Gly Gly Lys Thr Ala
130 135 140

Val Asn His Pro Leu Gly Lys Asn Met Ile Gly Ala Phe Tyr Gln Pro
145 150 155 160

Ala Ser Val Val Val Asp Leu Asp Cys Leu Lys Thr Leu Pro Pro Arg
165 170 175

Glu Leu Ala Ser Gly Leu Ala Glu Val Ile Lys Tyr Gly Ile Ile Leu
180 185 190

Asp Gly Ala Phe Phe Asn Trp Leu Glu Glu Asn Leu Asp Ala Leu Leu
195 200 205

Arg Leu Asp Gly Pro Ala Met Ala Tyr Cys Ile Arg Arg Cys Cys Glu
210 215 220

Leu Lys Ala Glu Val Val Ala Ala Asp Glu Arg Glu Thr Gly Leu Arg
225 230 235 240

Ala Leu Leu Asn Leu Gly His Thr Phe Gly His Ala Ile Glu Ala Glu
245 250 255

Met Gly Tyr Gly Asn Trp Leu His Gly Glu Ala Val Ala Ala Gly Met
260 265 270

Val Met Ala Ala Arg Thr Ser Glu Arg Leu Gly Gln Phe Ser Ser Ala
275 280 285

Glu Thr Gln Arg Ile Ile Thr Leu Leu Lys Arg Ala Gly Leu Pro Val
290 295 300

Asn Gly Pro Arg Glu Met Ser Ala Gln Ala Tyr Leu Pro His Met Leu
305 310 315 320

Arg Asp Lys Lys Val Leu Ala Gly Glu Met Arg Leu Ile Leu Pro Leu
325 330 335

Ala Ile Gly Lys Ser Glu Val Arg Ser Gly Val Ser His Glu Leu Val
340 345 350

Leu Asn Ala Ile Ala Asp Cys Gln Ser Ala
355 360